भारतीय मानक
Indian Standard

IS 12095 : 2023

ऑफसेट मशीनो की धातु की प्लेटो के लिए दी जाने वाली अनुशंसाएं

(पहला पुनरीक्षण)

Recommendations to be Given for Metal Plates for Offset Machines

(First Revision)

ICS 37.100.10

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Printing Machinery Sectional Committee, MED 25

FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards after the draft finalized by the Printing Machinery Sectional Committee had been approved by the Mechanical Engineering Divisional Council (MEDC).

This standard was first published in 1987. The present revision has been taken up with a view to incorporating the modifications found necessary as a result of experience gained on the use of this standard. Also, in this revision, the standard has been brought into the latest style and format of Indian Standard, and references to Indian Standards, wherever applicable have been updated. The following major modification has been incorporated in this revision of the standard:

a) General requirements have been modified;
b) Dimensional specifications have been modified; and
c) Tests to be performed on the metal plates have been added.

Revision of the standard is proposed based on the needs of the printing segment, the actual practices adopted during offset plate manufacturing, the size-thick grid used by customers and the various tests done during manufacturing of the digital offset plates.

The composition of the Committee responsible for the formulation of this standard is given in Annex A.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 ‘Rules for rounding off numerical values (*second revision*)’. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

RECOMMENDATIONS TO BE GIVEN FOR METAL PLATES FOR OFFSET MACHINES

(First Revision)

1 SCOPE

This standard covers the guidelines for metal plates for offset machines.

2 REFERENCES

The standards given below contain provisions which through their reference in this text constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibilities of applying the most recent editions of these standards:

IS No.	*Title*
IS 7088 : 1973	Recommended practice for anodizing aluminium and its alloys
IS 15553 : 2004/ ISO 12218 : 1997	Graphic technology — Process control — Offset platemaking
IS/ISO 12635 : 2021	Graphic technology — Plates for offset printing — Dimensions (*second revision*)
IS 1608 (Part1) : 2022/ISO 6892-1 : 2019	Metallic materials — Tensile testing: Part 1 Method of test at room temperature

3 MATERIAL

The metal plates will be manufactured from litho-grade aluminium coils.

4 GENERAL REQUIREMENTS

The surface of the plate shall be grained either by marbles or by electro chemical graining and anodising process as per IS 7088. A well-grained plate shall have a uniform matt surface free from all types of surface defects like scratches, spots, embedded particles, etc.

5 DIMENSIONS

All offset plate dimensions (length, width, and thickness) shall be as per ISO 12635:

Sl No.	*Nominal Size (Length × Width)* mm		*Thickness* mm
(1)	(2)	(3)	(4)
i)	> 410	> 520	0.15, 0.20, 0.28, and 0.30
ii)	≤ 410	≤ 520	0.15, 0.20, and 0.30

6 TESTS

6.1 Exposure Test

It is required to determine the minimum energy required to expose the plate to get 50 percent dot as 50 percent (resolution exposure) (*refer* IS 15553).

6.2 Development Test

It is performed to check solubility. The difference between the original image density and density after development should not be more than 0.1 to 0.2 when measured with densitometer.

6.3 Deletion Test

It is performed to remove image in exposed and developed plates. The test procedure is given below:

a) Apply finishing gum on the processed plate and dry;

b) Apply deletion fluid on unwanted image areas and wait for 60 s to 90 s;

c) Remove the deletion fluid with the help of wet sponge;

d) Ensure that the coating from the unwanted image areas is fully removed;

e) Gum up the areas where deletion fluid is applied;

f) Apply photo developing ink on the areas where the deletion fluid is applied. The unwanted image area should not pickup ink; and

g) Re-gum the entire plate and fan dry.

6.4 Run Length Test

It is performed to determine the durability on the press. The test procedure is given below:

a) Set the press as per the standard operating procedure (SOP) suggested by the press manufacturer;
b) Process the plates with standard processing condition using a test form;
c) Run the plates on the press till the maximum rated print capacity determined by the supplier for various dots per inch (DPI), paper, ink film densities and press conditions;
d) Check the dot size on print with spectrophotometer;
e) The difference between the original value of the dot and the actual value on print should not be less than 2 percent to 5 percent measured with plate reader; and
f) Count number of impressions till you get the above dot readings. The plate should withstand this condition till the maximum rated number of impressions.

6.5 Ink Water Balance Test

It is done to determine hydrophilic properties of non-image areas and ink receptive properties of the image areas. The test procedure to determine the properties is given below:

a) Hydrophilic properties:

    1) Mount the processed plate on the press;
    2) Put the inking rollers in 'ON' position while the press is in running condition and make the plate fully solid with ink;
    3) Apply the dampening rollers while the press is running, and count number of impressions required to completely remove ink from the non-image areas; and
    4) The number of sheets required should not be more than 5 to 10.

b) Ink receptive properties:

    1) Mount the processed plate on the press;
    2) Put the dampening rollers 'ON' white the press is in running condition;
    3) Put inking rollers 'ON' while the press is in running condition;
    4) Count number of sheets required to fully ink the plate; and
    5) The number of sheets required should not be 5 to 10.

6.6 Press Solvent Resistance Test

It is done to determine the ability of the plate to withstand various types of solvents. The test procedure is given below:

a) Process the plate with standard processing conditions using a standard chemical resistance image format with 40 percent, 80 percent and 100 percent dots at standard dots per inch (DPI) and lines per inch (LPI) specified by the supplier;
b) Put solvent drops on the above screens and wait for stipulated time specified by the supplier; and
c) Wipe off the solvents with the help of wet sponge and re-gum the plate.

Put the plate on press and check the image quality the image should not be affected by the solvent attack. No dot percent loss or solid loss should happen.

6.7 Ultimate Tensile Strength Test

It is performed at pre-bake and post-bake to determine the tensile strength of the metal on the press especially web presses (*refer* ISO 6892-1).

ANNEX A

(*Foreword*)

COMMITTEE COMPOSITION

Printing Machinery Sectional Committee, MED 25

Organization	*Representative(s)*
Savitribai Phule University, Ganeshkhind, Pune	Dr Dattatraya Kute **(*Chairperson*)**
All India Federation of Master Printers, New Delhi	Shri Harjinder Singh Shri President (*Alternate*)
Autoprint Machinery Manufacturers Private Limited, Coimbatore	Shri K. G. Suresh Shri Mahesh R. S. (*Alternate*)
Bennett Coleman and Company Limited, New Delhi	Shri Navneet Ahuja Shri Chand Kumar Sharma (*Alternate*)
Government Institute of Printing Technology, Mumbai	Shri Sameer Sadashiv Deshpande
Guru Jambheshwar University, Hisar	Prof Dr Anjan Kumar Baral Shri Ankit Boora (*Alternate*)
Indian Printing Packaging and Allied Machinery Manufacturers Association, Noida	Shri Dayakar Reddy Shri Prashant Vats (*Alternate*)
Kodak India Private Limited, Mumbai	Shri Abhiram Sathe Shri Ashok Miylani (*Alternate*)
Komori Corporation, New Delhi	Shri Sangam Khanna Shri Amitabh Jha (*Alternate*)
Konica Minolta Business Solutions India Private Limited, Gurugram	Shri Manish Gupta Shri Ankit Madan (*Alternate*)
MRL Printing Rolls Private Limited, Modinagar	Shri Vaibhav Agarwal
Manugraph India Limited, Kolhapur	Shri Mahesh Madhukar
Office of Development Commissioner (MSME), New Delhi	Ms Maitreyee Talapatra Shri Susanta Kumar Som (*Alternate*)
Provin Technos Private Limited, New Delhi	Shri Pradeep Nandagopal Shri Vinay Kumar Kaushal (*Alternate*)
Technova Imaging Systems India Private Limited, Mumbai	Shri Iyer Murali Krishnan Shri Shivasubramanian Subramanian (*Alternate*)
The Printers House Private Limited, Ballabhgarh	Shri S. K. Dixit Shri D. P. Dabas (*Alternate*)
The Regional Institute of Printing Technology, Kolkata	Shri Krishnendu Halder Shri Shankhya Debnath (*Alternate*)
Zenith Rollers Private Limited, Noida	Shri Onkar Singh Bhandari Shri Satpal Saggu (*Alternate*)
In Personal Capacity (*A-302, Srabasti Cooperative Housing Society Limited, B-13 Sammilani Park, Kolkata 700 075*)	Shri Diptendu Choudhury
BIS Directorate General	Shri Navindra Gautam, Scientist 'E'/Director and Head (Mechanical Engineering) [Representing Director General (*Ex-officio*)]

Member Secretary
Shri Lokraj Meena
Scientist 'B'/Assistant Director
(Mechanical Engineering), BIS

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Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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